ACCESSION #: 9603010029
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Indian Point 3 PAGE: 1 OF 13

DOCKET NUMBER: 05000286

TITLE: Automatic Actuation of Emergency Diesel Generators
Following a Loss of Offsite Power Due to a Failed Surge
Arrestor on the A Phase of the Feed to the Station
Auxiliary Transformer
EVENT DATE: 01/20/96 LER #: 96-002-00 REPORT DATE: 02/19/96

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(i), 50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: C. Elwood, Operations Technical TELEPHONE: (914) 8349
Specialist

COMPONENT FAILURE DESCRIPTION:
CAUSE: x SYSTEM: EA COMPONENT: LAR MANUFACTURER: W120
X LC RG R126
REPORTABLE NPRDS: No
No

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On January 20, 1996, at approximately 1845 hours, with the plant in the cold shutdown condition, Indian Point 3 lost offsite power from the normal 138 kV feeder to the Station. Loss of power initiated the start of the Emergency Diesel Generators (EDG). The EDG 31 output breaker tripped shortly after closing and emergency power was provided by EDG 32 and 33 until offsite power was restored from the 13.8 Kv feeder at approximately 2110 hours. During operator actions to secure EDG 32, room ventilation was found to be not operating as required. EDG 32 was declared inoperable as of 2229 on January 20, 1996, resulting in a condition prohibited by technical specifications (i.e., two inoperable EDG) until 2045 hours on January 21, 1996. The loss of offsite power was

caused by a failure of a surge arrestor on the A phase of the 138 Kv feed to the Station Auxiliary Transformer (SAT) due to moisture intrusion. The loss of EDG 31 was caused by a loose wire on the terminal block of an undervoltage sensing circuit for breaker control. The EDG 32 room ventilation malfunction was caused by debris in the pressure regulator used to supply air to the ventilation control system. Corrective actions included replacement of all three SAT surge arrestors, tightening of the loose wire on the EDG 31 undervoltage sensing circuit, and replacement of the air regulator for each EDG room ventilation system. There was no effect on public health and safety.

END OF ABSTRACT

Note: The Energy Industry Identification System Codes are identified within the brackets {}

DESCRIPTION OF EVENT

On January 20, 1996, at approximately 1845 hours, with the plant in the cold shutdown condition (reactor power at 35 cps, Reactor Coolant System (RCS) temperature at approximately 186 degrees F, RCS pressure at approximately 370 psig and pressurizer level at 28 percent), Indian Point 3 (IP3) lost offsite power from the normal 138 Kv feeder {FDR} to the Station Auxiliary Transformer (SAT) {XFMR}. The resulting undervoltage condition on the 480 volt buses {BU} {ED} initiated a non-safety injection blackout logic sequence starting all three Emergency Diesel Generators (EDG) {EK} 31, 32, 33. A four-hour emergency notification was made (No. 29870) at approximately 2016 hours in accordance with 10 CFR 50.72(b)(2)(ii) as a result of automatic actuation of the Emergency Diesel Generators.

At the time of the event, station power was being supplied by the Buchanan substation through 138 kV feeder 95331 to the SAT and coordinated through 6.9 kV buses 5 and 6 {EB} to the Station Service Transformers (SST) and 480 volt safeguards buses 2A, 3A, 5A, and 6A (buses 2A and 3A were cross-tied because the SST supplying 480 volt bus 3A was out of service). Reactor Coolant Pump {PU} (RCP) 34 and Residual Heat Removal {BP} pump 32 were in service. when offsite power was lost, the three EDGs started and their output breakers closed and energized the 480 volt safeguards buses (the EDG 31 output breaker opened shortly afterward).

Operators took immediate action to restore core cooling and offsite power. The following actions took place:

o At approximately 1846 hours, Station Security implemented contingency measures, manned adversely affected areas, and initiated a heightened state of awareness.

o At approximately 1850 hours, RHR pump 32 was manually loaded onto bus 6A and started (core cooling was lost for approximately 5 minutes).

o Service Water (SW) Pump 31 was manually started to supply the non-essential header at approximately 1852 hours.

o Charging Pump 33 was manually started and RCP seal injection flow re-established at approximately 1858 hours.

o At approximately 1900 hours the Shift Manager reviewed the Emergency Plan Action Levels (EAL) for applicability and determined that entry into an emergency classification was not warranted because the EAL for loss of AC power sources requires loss of power to all station transformers (5, 2, 3, 6) for greater than 15 minutes from all of the offsite power sources (i.e., Unit Auxiliary Transformer, SAT, Feeders 13W92 and 13W93). The 13W92 and 13W93 Feeders were considered operable because there were no trouble alarms received from the condensate polisher or Appendix R Auxiliary Diesel Generator, both of which are powered from the 13W 13.8 kV feeders, and no notification was received from Con Edison that a feeder was unavailable.

o At approximately 1900 hours, an investigation of the offsite feeder fault was initiated and the Consolidated Edison District Operator (CEDO) was called on the need for back-up power. The CEDO later gave permission to use the alternate offsite 13.8 kV feeder (13W93) to power the Gas Turbine substation bus in order to energize 6.9 kV bus 5 and bus 6. At approximately 2052, IP3 operations restored offsite power to 6.9 kV buses 5 and 6.

o The operators connected the 480 volt buses with offsite power from the 13.8 kV gas turbine substation at approximately 2110 hours.

o At approximately 2224 hours, while securing EDG 32, a Nuclear Plant Operator (NPO) noted that the room temperature was high and upon checking the room temperature indicators observed the indicated temperature was above the setpoints where the ventilation system exhaust fans should have been running and just below the high

temperature alarm setpoint. At approximately 2229 hours, the NPO reported this condition to the control room {VI} (CR) and a Reactor Operator (RO) logged the condition of the EDG-32 ventilation system.

o An NPO identified a continuing problem with the EDG 32 ventilation system while performing an EDG ventilation air system special log and at approximately 2300 hours, informed the CR.

During the loss of offsite power event, the plant functioned as expected except for the following:

o The output breaker for EDG 31 closed then tripped open after approximately 12 seconds de-energizing 480 volt buses 2A and 3A, causing a loss of power to RHR pump 31.

o The ventilation system for EDG 32 did not function as required.

o Reactor Operators (RO) did not communicate to the Control Room Supervisor (CRS) and Shift Manager (SM) the information on the high temperature in the EDG 32 room provided by the NPO. During a post event de-brief, the off-going SM became aware of the problem and notified the on-coming SM and at 0130 hours the on-coming SM declared EDG 32 inoperable as of approximately 2229 hours. Because EDG 31 was inoperable, the plant was in a condition prohibited by Technical Specification 3.7.F.4 (two EDGs inoperable in cold shutdown). Failure to provide timely communications resulted in the operability determination on EDG 32 being delayed approximately three hours.

Investigations were conducted for the reason of the loss of offsite power, the EDG 31 output breaker trip, and failure of the EDG 32 ventilation system to operate as required. The results of these investigations are discussed in the following sections.

Loss Offsite Power

An inspection by operations on January 21, 1996, revealed pieces of a surge arrestor {LAR} near the SAT which was later confirmed to be from a failure of the Phase "A" surge arrestor. The failed arrestor was original equipment of a Westinghouse 120 kV SVS Autovalve Gap-type Arrestor Unit {W123}. A subsequent assessment by engineering concluded that the failure was due to moisture intrusion through a caulked seal in the arrestor housing which caused a phase to ground fault within the arrestor. A significant storm with high winds and heavy rains had

occurred the previous day.

Inoperable EDG 32 Ventilation System

Operations issued a Problem Identification Description (PID) on

December 18, 1995, for a failure of the regulator DA-22-2 {RG} {R146} to the air receiver used to actuate the EDG room intake louvers {LV}, exhaust fans {FAN} and dampers {DMP} to maintain air pressure at 100 psig. The regulator was adjusted to achieve a pressure of 100 psig. A Work Request was issued and placed on the 12 week schedule to replace the regulator. A functional test (3PT-M79B) of EDG 32 on January 6, 1996, indicated no problems (room temperature log data indicated that the room temperature lowered during the test). As a followup to the PID, the System Engineer regularly checked the air receiver tank pressure and, on January 19, 1996, approximately 30 hours before the event, the System Engineer noted proper pressure in the tank.

Subsequent to the event, Instrumentation & Control (I&C) determined that the air regulator had failed to provide the pressure required to open the exhaust fan dampers and intake louvers. I&C found that the pressure regulator was supplying approximately 5 psig air pressure. I&C performed preliminary bench tests of the regulator and discovered the regulator output could not be adjusted to maintain a 100 psig nor yield results that were repeatable. I&C concluded that the ventilation system failed to operate as required because of low air pressure. Maintenance replaced the regulator on January 21, 1996, and performed testing of the ventilation system. The ventilation system tested satisfactorily and EDG 32 was declared operable on January 21, 1996 at approximately 2045 hours. I&C and an independent consultant investigated the EDG 32 air regulator further. The regulator was disassembled and debris was observed, particularly in the valve seating area. Also the valve/stem assembly was noted to be loose. I&C attributed the debris discovered to internal scaling of the carbon steel piping which is connected to the inlet of the regulators.

A special test was performed on the EDG 32 ventilation system by I&C to determine system operation during the LOOP event. The test results indicated that the pneumatic portion of the ventilation system has minimal leakage. The test also showed that the air receiver tank has sufficient stand alone capacity to operate the exhaust fans for approximately one half hour with approximately a 3 psi drop in system pressure. Engineering judgement estimated that the ventilation system could operate one to two hours from the receiver tank alone. NYPA

concluded that it is likely that the room ventilation system operated sufficiently so that the room temperature did not reach the high temperature alarm setpoint of 115 degrees F. Engineering judged that since the NPO observed the room temperature at less than 115 degrees F, and there is no other credible means to reduce the temperature,

then it is reasonable to conclude the ventilation system operated.

On January 22, 1996, a Deviation Event Report (DER) and a PID was issued for the regulator of EDG 33 room ventilation system because it required constant adjustments in order to maintain the output to 100 psig. The regulator was replaced and the old regulator disassembled. I&C observed debris in the valve seating area and the valve/stem assembly was disengaged from the diaphragm. To assess the extent of condition, the EDG 32 regulator that had been replaced on January 21, 1996, was removed and bench tested. The test showed that the replacement regulator (EDG 32) was unable to maintain pressure. Upon disassembly, the replacement regulator (EDG 32) valve/stem assembly was found disconnected but with no debris and it was replaced with another new regulator. As part of the extent of condition assessment, the EDG 31 regulator was removed, tested and inspected. Although the regulator maintained air pressure, debris was noted in the internals and the valve/stem found loose. The pressure regulator for EDG 31 was replaced. The regulators are commercial grade and dedicated for Category I service. NYPA reported the loose valve/stem assembly to the manufacturer.

A failure analysis will be performed on the failed EDG 32 regulator.

Trip of EDG 31 Output Breaker

An investigation by Engineering determined that a close signal was present at the breaker, indicating that the permissive logic matrix necessary for breaker closure was made-up following the loss of offsite power. Plant computer data showed that the EDG 31 output breaker closed to energize bus 2A and 3A for approximately 12 seconds and also showed that SW Pump 35 started at approximately 12 seconds and then stopped. Engineering performed troubleshooting, testing, and field checks of trip functions, but identified no deficiencies. Subsequent testing was able to repeat the problem and in-situ testing of the diesel undervoltage circuit determined that a seal-in contact off a relay {CVX} in the diesel undervoltage circuit had a loose wire termination.

The function of the seal-in circuit is to block a trip signal while the undervoltage sensing relay (CV7) is going through its timing cycle. When

an undervoltage occurred with the start of SW pump 35, the undervoltage relay started its timing. However, the seal-in circuit was not functional due to the loose wire termination,

so a trip signal to the EDG 31 output breaker was generated. The loose wire termination on the seal-in circuit was tightened and a performance test (ENG-582) demonstrated EDG operability. To determine the extent of condition, Engineering performed tightness checks on the compression type terminal blocks in EDG 31, EDG 32 and EDG 33. A total of six loose terminals were found which were tightened. The loose wires discovered on the terminal blocks use compression type connections. Terminal blocks using compression type connections, used on each of the EDG's, hold the wire strands in place by a compressive force. These differ from the terminal blocks commonly used at the plant which utilize ring terminals crimped onto the wires which are then secured to the terminal block by a screw. Engineering has determined that the location of the EDG control panels in the EDG room, which subjects them to vibration, may have contributed to the wire loosening.

CAUSE OF EVENT

The cause of the loss of power to the SAT was due to an internal phase to ground flash over within the surge arrestor that shorted the "A" Phase of feeder 95331 to ground. The short was caused by moisture intrusion which had entered the arrestor housing through a caulked seal where the upper internal rupture disk fits against the housing.

The cause of the 31 EDG output breaker to trip was a loose wire termination on a terminal block within the EDG control panel. The wire is in the control circuity for the EDG output breaker which allows the seal-in contact off a relay (CVX) in the undervoltage circuit of the output breaker control circuity to operate with a time delay.

The cause of the EDG 32 ventilation system to not operate as required was low air pressure as a result of adjustments to maintain air pressure. The regulator did not adjust primarily because it contained debris in the valve seating area and was intensified by a loose valve/stem assembly. The debris was from rust in the carbon steel piping which is connected to the inlet of the regulators.

The reactor operator's failure to communicate to the CRS and SM the problem with the EDG 32 ventilation system was due to human error.

CORRECTIVE ACTIONS

The following corrective actions have been performed to address the causes identified for this event:

Failed Surge Arrestor

o NYPA replaced all three existing gap-type surge arrestors on the SAT with a metal oxide (zinc-oxide) type, Model VN219598 manufactured by Ohio Brass Incorporated.

o NYPA performed DOBLE testing prior to installation of the replacement arrestors to establish baseline conditions for future trending.

o NYPA Power Generation Group performed an insulation coordination review to verify compatibility of the replacement metal oxide arrestors with other replacement arrestors.

o NYPA inspected applicable portions of the 138 kV distribution system operated by NYPA and cleaned selected components to include transformer bushings, pipe bus insulators, and pipe bus. The inspections revealed that three pipe bus insulator stacks contained damaged insulator segments but were determined not to be related to the surge arrestor failure. NYPA replaced all three pipe bus insulator stacks totaling 12 insulator segments.

o NYPA completely disassembled and performed an assessment of the Phase A arrestor to fully understand and define the cause of the failure.

o NYPA performed a gas-in-oil analyses on oil samples from the main tank and upper tap changer compartment of the SAT to determine whether the transformer had received any internal damage from the arrestor failure. The results showed no significant changes in the oil.

o NYPA checked the switchyard protective relaying to identify relay targets and determine if appropriate relaying actuated to isolate the fault. NYPA Power Generation Group reviewed the list of identified target relays and concluded that a Phase A to Ground fault had occurred and was cleared in 4.5 cycles. All of the identified relay actuation were determined to be correct for the fault type and location.

o Maintenance reviewed the Instruction Manual for Preventive Maintenance Program recommendations to ascertain the routine maintenance requirements for surge arrestors. Maintenance determined that the recommended preventive maintenance is to maintain the arrestor's porcelain housing clean. There was no specified interval identified for cleaning. Maintenance cleans the surge arrestors every refueling outage per the preventive maintenance program.

Failure of the EDG Ventilation System

o Operations implemented Special Log 96-04 on January 23, 1996, to monitor each EDG ventilation system air pressure daily.

o The Operations Periodic Task (OPT) Log sheets OPT-16, OPT-17 (Conventional Hot and Cold Logs) used for checking the EDGs was revised on February 9, 1996, to add the pressure indication for the EDG room ventilation system air supply.

o NYPA replaced the air pressure regulator for the room ventilation control system for EDG 31, 32, and 33 and verified the proper operation of the system. NYPA reviewed the calibration history of the EDG room temperature controllers for EDG 31, 32, and 33 and found that the calibrations were in frequency and the calibration results satisfactory.

o NYPA reviewed the regulators commercial dedication package DPT-0716. The review indicated that the test method does not provide instructions for varying the flow through the regulator while observing the ability of the regulator to maintain output pressure.

o Engineering performed an extent of condition review of the purchase orders to identify those applications in the plant that utilize regulators by the same manufacturer. The results of the review indicated that these regulators are also used on the pneumatic system associated with the Fan Cooler Units Nos. 31, 32, and 33 dampers. PIDs (3) were issued by engineering on February 11, 1996, to perform an inspection and if necessary, tighten the valve/stem assembly of the regulators for FCUs Nos. 31, 32, and 33.

o Maintenance replaced the carbon steel piping from the starting air receiver tank to the regulator and added a filter to the inlet of

the regulators and a drip leg to piping upstream of the regulators to help trap any debris before it enters the regulator.

Poor Control Room Communications

o Operations manager reviewed the circumstances of the event with each crew during shift turnover meetings. The operations manager emphasized the problems associated with excessive filtering of plant information before the information is communicated to the CRS, SM, or FSS.

o The General Manager Operations issued a memorandum (IP-GMO-96-022) to Operations personnel on the importance of effective communications.

EDG Breaker Trip

o The loose wire termination in the terminal block for the EDG 31 control panel was tightened and the special test (ENG-582) rerun. In the retest, Service Water Pump 32 operated successfully with no EDG breaker trip.

o A special test (ENG-585) was performed by engineering that demonstrated the ability of EDG 31 to supply loads on bus 2A/3A in a blackout condition, and not trip during the starting sequence.

o Engineering performed a visual inspection and tightness check of compression type terminal block wire terminations on all three EDG control panels. A total of six loose terminals were found which were tightened.

o Engineering investigated the cause and extent of condition of the lifted wires in a voltage shutdown circuit contact (K1X relay) discovered while troubleshooting the EDG 31 breaker trip. The investigation was completed and a Temporary Modification was issued to justify disconnecting the K1X relay contact in the breaker shunt trip circuit. A Nuclear Safety Evaluation (NSE) was written to support the temporary modification.

The following corrective actions will be performed to address the causes identified for this event and prevent recurrence:

o An independent engineering consultant will perform a failure analysis on the defective regulator for EDG 32. The failure

analysis is scheduled to be complete by March 22, 1996.

o The Procurement Engineering Group (PEG) will evaluate the adequacy of the dedication testing for regulators and review the dedication package for the need to add a tightness check of the regulator stem and seat retainer assembly. The evaluation will be completed by March 29, 1996.

o Maintenance Engineering will establish a Preventive Maintenance (PM) program to periodically clean the regulator inlet screen and check the tightness of the regulator stem and seat disc retainer assembly or periodically replace the regulator. The PM program will be established by July 26, 1996.

o System Engineering will evaluate the need to improve the quality of the air in the EDG starting air system including the change-out of the starting air receiver tank and providing additional filters. The evaluation will be completed by September 15, 1996.

o Engineering will develop a procedure/preventive maintenance (PM) program to periodically check EDG terminal block wire tightness. The procedure/PM will be developed by June 15, 1996.

o Engineering will develop a surveillance test or I&C calibration procedure to test the protective trip circuits for the output breakers of the EDG's. The surveillance test or I&C calibration procedure will be completed by July 26, 1996.

o Engineering will identify other applications where compression type terminal blocks are used and revise the procedure/PM program developed for checking EDG terminal block wire tightness to check these other wire terminations. The review and procedure revision will be complete by July 26, 1996.

ANALYSIS OF EVENT

The event, loss of offsite power with automatic initiation of the EDG, is reportable under 10 CFR 50.73 (a)(2)(iv). The licensee shall report any event or condition that resulted in a manual or automatic actuation of an Engineered Safety Feature (ESF). The loss of power to the SAT initiated a non-safety injection blackout logic sequence which sent an automatic start signal to EDGs 31, 32, and 33. This event was terminated at 2110 hours, a period of 2 hours and 25 minutes.

The event that occurred during the recovery from the loss of offsite power (i.e., unavailability of EDG 31 at approximately 1845 hours when the output breaker failed to stay closed and the subsequent unavailability of EDG 32 at 2229 hours as a result of an inoperable EDG room ventilation system) is reportable under 10 CFR 50.73 (a)(2)(i)(B). The licensee shall report any event or condition that resulted in a condition prohibited by Technical Specification. Technical Specification 3.7.F.4 requires two EDGs to he operable during cold shutdown. This event lasted for approximately 22 hours, from 2229 hours on January 20, 1996 until EDG 32 was declared operable at 2045 hours on January 21, 1996.

A review of Licensee Event Reports (LER) over the last three years identified the following LERs:

o Events related to safeguards actuation were reported in LERs 95-004 and 95-009.

o Events related to the EDG ventilation system that impacted EDG operability were reported in LERs 95-015, and 94-010.

o Events affecting operability of the EDGs excluding their ventilation systems were reported in LERs 95-007, 93-053, 93-027, 93-024, 93-020, and 93-019.

SAFETY SIGNIFICANCE

This event did not have a significant effect on the health and safety of the public.

The plant is designed for a loss of offsite power (LOOP) or safe shutdown earthquake (SSE) and to mitigate the consequences of a loss of coolant accident (LOCA) considering a LOOP. A single failure is considered in evaluating the ability to meet this design. Any two EDGs, as a backup to the normal standby AC power supply are capable of sequentially starting and supplying the power requirements of one minimum required set of safeguards equipment. The safety significance was considered for three conditions: LOOP while shutdown, LOOP while operating, and LOOP and LOCA while operating.

o LOOP while shutdown - When the loss of offsite power occurred during cold shutdown, the three EDG were considered operable prior to the event. The plant retained adequate electrical power when two of the three EDG operated until offsite power was restored.

o LOOP while operating - If the plant had been operating when the loss of offsite power occurred, two operable EDGs would have been required to meet design requirements. EDG 33 remained operable and EDG 32 actually operated until offsite power was restored. Therefore, there would have been adequate power available until offsite power was restored.

o LOOP with LOCA while operating - The preventive maintenance schedule for EDG 32, scheduled for February 8, 1996 at the time of the LOOP, included replacement of the air regulator. If the replacement air regulator were to fail in the manner that the regulator did after the LOOP, the monthly surveillance test would be expected to have identified the failure and initiated additional assessment of the reason for the failure. A month plus 25% is therefore considered to be the longest period during which the air regulator would be inoperable. This duration was considered with the frequency of the event (the Individual Plant Examination identifies the frequency of a large break LOCA as 4.77E-4 per year and the frequency of a LOOP as 6.8E-2 per year for a combined frequency of 3.24E-5 per year) and Licensing concluded that there was no significant effect on public health and safety.

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 736 8001

New York Power L.M. Hill
Authority Site Executive Officer

February 19, 1996
IPN-96- 015

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
License No. DPR-64
Licensee Event Report # 96-002-00
Automatic Actuation of Emergency Diesel Generators Following a

Loss of Offsite Power Due to a Failed Surge Arrester on the A
Phase of the Feed to the Station Auxiliary Transformer

Dear Sir:

The attached Licensee Event Report (LER) 96-002-00 is hereby submitted as required by 10CFR50.73. This event is of the type defined in 10 CFR 50.73 (a)(2)(iv).

Also, attached are the commitments made by the Authority in this LER.

Very truly yours,

L. M. Hill
Site Executive Officer
Indian Point 3 Nuclear Power Plant

Attachment

cc: See next page

cc: Mr. Thomas T. Martin
Regional Administrator
Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

INPO Record Center
700 Galleria Parkway
Atlanta, Georgia 30339-5957

U.S. Nuclear Regulatory Commission
Resident Inspectors' Office
Indian Point 3 Nuclear Power Plant

LIST OF COMMITMENTS

Number	Commitment	Due
IPN-96-015-01	An independent engineering consultant will perform a failure analysis on the defective regulator for EDG 3.	March 22, 1996.
IPN-96-015-02	The Procurement Engineering Group (PEG) will evaluate the adequacy of the dedication testing for regulators and review the dedication package for the need to add a tightness check of the regulator stem and seat disc assembly.	March 29, 1996.
IPN-96-015-03	Maintenance Engineering will establish a Preventive Maintenance (PM) program to periodically clean the regulator inlet screen and check the tightness of the regulator stem and seat disc assembly or periodically replace the regulator.	July 26, 1996.
IPN-96-015-04	System Engineering will evaluate the need to improve the quality of the air in the EDG starting air system including the changeout of the starting air receiver tank and providing additional filters.	September 15, 1996

LIST OF COMMITMENTS

IPN-96-015-05	Engineering will develop a procedure/preventive maintenance (PM) program to periodically check EDG terminal block wire tightness.	June 15, 1996.
IPN-96-015-06	Engineering will develop a surveillance test or I&C calibration procedure to test the protective trip circuits for the output breakers of the EDGs.	July 26, 1996.
IPN-96-015-07	Engineering will identify other applications where compression type terminal blocks are used and revise the procedure/PM program developed for checking EDG terminal block wire tightness to check these other wire terminations.	July 26, 1996.

*** END OF DOCUMENT ***